

ARJUN GOPAL AND ORS.

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v.

UNION OF INDIA AND ORS.

(I.A. No. 52448 of 2017)

In

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(Writ Petition (Civil) No. 728 of 2015)

SEPTEMBER 12, 2017

[MADAN B. LOKUR AND DEEPAK GUPTA, JJ.]

Constitution of India – Art. 32 – Public interest litigation – Writ petition seeking ban on use of fireworks, sparklers and minor explosives in any form, during festivals or otherwise – Interim order passed on 11.11.2016 directing suspension of all such licences permitting sale of fireworks, wholesale and retail within the territory of the National Capital Region – Manufacturers and suppliers of fireworks seeking modification of the interim order – Held: Continuing the suspension of licences might be too radical a step to take for the present – A graded and balanced approach is necessary that would reduce and gradually eliminate air pollution in Delhi and in the NCR caused by the bursting of fireworks – At the same time it is necessary to ensure that injustice is not caused to those who have already been granted a valid permanent licence to possess and sell fireworks in Delhi and the NCR – Graded and balanced approach is not intended to dilute the primary concern which is and remains the health of everybody and the human right to breathe good quality air – Health must take precedence over the commercial or other interest of the applicant and those granted a permanent licence to possess and sell fireworks – Thus, a graded regulation is necessary which would eventually result in a prohibition – Further, it cannot be said with any great degree of certainty that the extremely poor quality of air in Delhi in November and December 2016 was the result only of bursting fireworks around Diwali, certainly, there were other causes as well – As a result, a complete ban on the sale of fireworks would be an extreme step that might not be fully warranted on the facts available – Also, large number of temporary licences have been issued for possession and sale of fireworks – Thus, there is some justification for modifying

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A *the interim order and lifting the suspension of the permanent licences – In view thereof, directions issued whereby suspension of permanent licenses by order dated 11.11.2017, lifted temporarily – Pollution – Air pollution.*

Disposing of the interim application, the Court

B **HELD: 1.1** There can be no doubt that the residents of the NCT of Delhi and indeed the entire NCR are entitled to breathe unpolluted air. They are entitled to the protection of their health from the adverse consequences of breathing in air polluted by the bursting of fireworks. The right to breathe clean air is a recognized right under the Constitution. [Paras 65. 66] [851-C]

C **1.2** The right to health coupled with the right to breathe clean air leaves no manner of doubt that it is important that air pollution deserves to be eliminated and one of the possible methods of reducing it during Diwali is by continuing the suspension of licences for the sale of fireworks and therefore implicitly, prohibiting the bursting of fireworks. [Para 67] [852-D]

D **1.3** Continuing the suspension of licences might be too radical a step to take for the present—a graded and balanced approach is necessary that would reduce and gradually eliminate air pollution in Delhi and in the NCR caused by the bursting of fireworks. At the same time it is necessary to ensure that injustice is not caused to those who have already been granted a valid permanent licence to possess and sell fireworks in Delhi and the NCR. The graded and balanced approach is not intended to dilute the primary concern which is and remains the health of everybody and the human right to breathe good quality air or at least not be compelled to breathe poor quality air. Generally speaking, this must take precedence over the commercial or other interest of the applicant and those granted a permanent licence to possess and sell fireworks. [Para 68] [852-G-H; 853-A-B]

E **1.4** It cannot be said with any great degree of certainty that the extremely poor quality of air in Delhi in November and December 2016 was the result only of bursting fireworks around Diwali. Certainly, there were other causes as well, but even so the contribution of the bursting of fireworks cannot be glossed

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over. Unfortunately, neither is it possible to give an accurate or relative assessment of the contribution of the other identified factors nor the contribution of bursting fireworks to the poor air quality in Delhi and in the NCR. Consequently, a complete ban on the sale of fireworks would be an extreme step that might not be fully warranted by the facts available. There is, therefore, some justification for modifying the interim order passed on 11th November, 2016 and lifting the suspension of the permanent licences. [Para 69] [852-H; 853-A-B]

1.5 It cannot be forgotten that admittedly there is a huge quantity of fireworks in Delhi and in the NCR and the figure has been provided by the applicant. Similarly, there can be no doubt that the Delhi Police had issued a large number of temporary licences in 2016 and it would not be unreasonable to assume that around and during Diwali, there would have been some illegal temporary shops set up, whether known or not known to the police. There are no figures with regard to the NCR, but it is assumed that like in Delhi, a large number of temporary licences have been issued for the possession and sale of fireworks. Thus, there is a need to regulate the availability and sale of fireworks in Delhi and the NCR. [Para 70] [853-B-D]

1.6 The health of the people in Delhi and in the NCR must take precedence over any commercial or other interest of the applicant or any of the permanent licensees and, therefore, a graded regulation is necessary which would eventually result in a prohibition. [Para 71] [853-E]

2. Taking all factors into consideration, the following orders and directions are issued:

(1) The directions issued by this Court in *Sadar Bazar Fire Works (Pucca Shop) Association* case shall stand partially modified to the extent that they are not in conformity with the Explosives Rules which shall be implemented in full by the concerned authorities. Safety from fire hazards is one of the concerns in this regard.

(2) Specifically, Rule 15 relating to marking on explosives and packages and Rule 84 relating to temporary shops for possession and sale of fireworks during festivals of the Explosives Rules

- A** shall be strictly enforced. This should not be construed to mean that the other Rules need not be enforced – all Rules should be enforced. But if the fireworks do not conform to the requirements of Rules 15 and 84, they cannot be sold in the NCR, including Delhi and this prohibition is absolute.
- B** (3) The directions issued and restrictions imposed in the order passed by this Court on 18th July, 2005 in Noise Pollution (V) shall continue to be in force.
- (4) The concerned police authorities and the District Magistrates would ensure that fireworks are not burst in silence zones that is, an area at least 100 meters away from hospitals, nursing homes, primary and district health-care centres, educational institutions, courts, religious places or any other area that may be declared as a silence zone by the concerned authorities.
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- (5) The Delhi Police is directed to reduce the grant of temporary licences by about 50% of the number of licences granted in 2016. The number of temporary licences should be capped at 500. Similarly, the States in the NCR are restrained from granting more than 50% of the number of temporary licences granted in 2016. The area of distribution of the temporary licences is entirely for the authorities to decide.
- D**
- E** (6) The Union of India would ensure strict compliance with the Notification GSR No. 64(E) dated 27th January, 1992 regarding the ban on import of fireworks. The Union of India is at liberty to update and revise this notification in view of the passage of time and further knowledge gained over the last 25 years and issue a fresh notification, if necessary.
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- (7) The Department of Education of the Government of NCT of Delhi and the corresponding Department in other States in the NCR shall immediately formulate a plan of action, in not more than 15 days, to reach out to children in all the schools through the school staff, volunteers and NGOs to sensitize and educate school children on the health hazards and ill-effects of breathing polluted air, including air that is polluted due to fireworks. School children should be encouraged to reduce, if not eliminate, the bursting of fireworks as a part of any festivities.
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- H** (8) The Government of NCT of Delhi and other States in the

NCR may consider interacting with established medical institutions for issuing advisories cautioning people about the health hazards of bursting fireworks. A

(9) The interim direction issued by this Court on 31st July, 2017 prohibiting the use of compounds of antimony, lithium, mercury, arsenic and lead in the manufacture of fireworks is made absolute. In addition, the use of strontium chromate in the manufacture of fireworks is prohibited. B

(10) Fireworks containing aluminium, sulphur, potassium and barium may be sold in Delhi and in the NCR, provided the composition already approved by PESO is maintained. It is the responsibility of PESO to ensure compliance of the standards it has formulated. C

(11) Since there are enough fireworks available for sale in Delhi and the NCR, the transport of fireworks into Delhi and the NCR from outside the region is prohibited and the concerned law enforcement authorities would ensure that there is no further entry of fireworks into Delhi and the NCR till further orders. Even 50,00,000 kg of fireworks is far more than enough for Dussehra and Diwali in 2017. The permanent licensees are at liberty to exhaust their existing stock of fireworks in Delhi and the NCR and, if that is not possible, take measures to transport the stocks outside Delhi and the NCR. D E

(12) The suspension of permanent licences as directed by the order dated 11th November, 2016 is lifted for the time being. This might require a review after Diwali depending on the ambient air quality post Diwali. However, it is made explicit that the sale of fireworks by the permanent licensees must conform to the directions given above and must be fully in compliance with the Explosives Rules. The permanent licences were issued by PESO and therefore the responsibility is on PESO to ensure compliance. F

(13) While lifting the suspension on the permanent licences already granted, these licensees are put on notice for Dussehra and Diwali in 2018 that they would be permitted to possess and sell only 50% of the quantity permitted in 2017 and that this would substantially reduce over the next couple of years. The permanent licensees are at liberty to file objections to this proposed direction G H

- A within 30 days from today and thereafter the objections if any would be heard and decided. If no objections are filed, this direction would become absolute without any further reference to any licensee.
- B (14) Since there is a lack of clarity on the safety limits of various metals and constituents used in fireworks, a research study must be jointly carried out by the CPCB and the FDRC laying down appropriate standards for ambient air quality in relation to the bursting of fireworks and the release of their constituents in the air. While Schedule VII of the Environment (Protection) Rules, 1986 does deal with several metals, but as it is seen that there are several other metals or constituents of fireworks that have not been studied by the CPCB and no standards have been laid down with regard to the concentration of these metals or constituents in the ambient air. The CPCB has assured that it will complete the exercise by 15th September, 2017 but keeping in mind its track record subsequent to the order dated 11th November, 2016 this does not seem possible. Therefore, time is granted to the CPCB to come out with definite standards on or before 30th September, 2017.
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- E (15) In any event, a research study also needs to be conducted on the impact of bursting fireworks during Dussehra and Diwali on the health of the people. A Committee is appointed to be chaired by the Chairperson of the CPCB and consisting of officers at the appropriate level from the National Physical Laboratory, Delhi, the Defence Institute of Physiology and Allied Sciences, Timarpur, Delhi, the Indian Institute of Technology-Kanpur, scientists from F the State Pollution Control Boards, the Fire Development and Research Centre, Sivakasi and Nagpur and the National Environment Engineering Research Institute (NEERI) nominated by the Chairperson of the CPCB to submit a report in this regard preferably on or before 31st December, 2017.
- G (16) Keeping in mind the adverse effects of air pollution, the human right to breathe clean air and the human right to health, the Central Government and other authorities should consider encouraging display fireworks through community participation rather than individual bursting of fireworks. [Para 71] [853-E-H; 854-A-H; 855-A-H; 856-A-G]
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Arjun Gopal v. Union of India (2017) 1 SCC 412; *Noise Pollution (V) in Re.* (2005) 5 SCC 733 : [2005] 1 Suppl. SCR 624; *Sadar Bazar Fire Works (Pucca Shop) Association v. Pankaj Traders & Ors.* SLP (C) Nos. 17327-28/1993; *Consumer Education & Research Centre v. Union of India* (1995) 3 SCC 42 : [1995] 1 SCR 626; *Occupational Health & Safety Assn. v. Union of India* (2014) 3 SCC 547 : [2014] 4 SCR 10; *Vellore Citizens' Welfare Forum v. Union of India* (1996) 5 SCC 647 : [1996] 5 Suppl. SCR 241 – referred to.

Case Law Reference

(2017) 1 SCC 412	referred to	Para 3	A
[2005] 1 Suppl. SCR 624	referred to	Para 20	
[1995] 1 SCR 626	referred to	Para 63	B
[2014] 4 SCR 10	referred to	Para 64	
[1996] 5 Suppl. SCR 241	referred to	Para 66	D

CIVIL ORIGINAL JURISDICTION : Writ Petition (Civil) No.728 of 2015

Under Article 32 of the Constitution of India.

Gopal Sankaranarayan, Ms. Pooja Dhar, Zeeshan Diwan, Advs. for the Petitioners E

Ms. Pinky Anand, ASG, Anil Grover, AAG, A.K. Sinha, C.A. Sundaram, P.S. Patwalia, Sr. Advs., Ajay Sharma, S.W.A. Qadri, D.N. Gobardhan, Amit Sharma, Saeed Qadri, G. S. Makker, B. Krishna Prasad, R.K. Rathore, Ms. Kiran Bhardwaj, Ritesh Kumar, Ms. Binu Tamta, Ms. Vimla Sinha, B.V. Balram Das, Ms. Rohini Musa, Sachin Mittal, Sagar Kothari, Ms. Mansi Bhatia, Ms. Prachi Goel, Rajiv Rekhani, Yogender Handoo, Ms. Charu Wali Khanna, Chirag M. Shroff, Dharmendra Singh Pal, Ms. Sarla Chandra, Mrs. V.D. Khanna, M.A. Chinnasamy, Ms. C. Rubavathi, P. Raja Ram, V. Senthil Kumar, M/s Corporate Law Group, Anish R. Shah, Vijay Panjwani, Debojit Borkakati, M. Balashivudu, Piyush Hans, Satish Kumar, Sanjay Kumar Visen, Govind Narayan Kaushik, Dr. Kailash Chand, Rajiv Jain (in-person) for the Respondents F G

A The Judgment of the Court was delivered by
MADAN B. LOKUR, J. 1. A large number of disparate prayers have been made in this public interest litigation initiated by the petitioners under Article 32 of the Constitution, but for the time being we are only concerned with the first prayer. This is to the effect that this Court may
B issue a writ of mandamus or any other appropriate writ or direction to ban the use of fireworks, sparklers and minor explosives in any form, during festivals or otherwise.

2. The public interest relief sought for is required to be considered from two perspectives: firstly, from preventing air pollution through the bursting of fireworks and secondly, by invoking the provisions of the
C Explosives Act, 1884 and the Explosives Rules, 2008 framed thereunder for preventing air pollution by restricting the possession and sale of fireworks in the National Capital Region.

Fireworks and air pollution in 2016

D 3. The prayer for a complete prohibition on the sale of fireworks due to pollution in the air caused by the bursting of fireworks was considered at an interim stage by this Court and a detailed order passed on 11th November, 2016.¹ The manufacturers and suppliers of fireworks primarily based in Sivakasi (Tamil Nadu) moved an application on or about 5th July, 2017 for modification of that interim order. The modification
E application is registered as I.A. No. 52448 of 2017 and we now propose to decide that application.

4. The background for the interim order passed on 11th November, 2016 is that Diwali was celebrated in 2016 on 30th October. On the next day, it was discovered that PM_{2.5} levels in the air had crossed 700 µg/m³ being among the highest levels recorded in the world and about 29 times
F above the standards laid down by the World Health Organization (WHO). We need not delve into the details given in the order since there is no dispute that the air in Delhi and in most parts of the National Capital Region (NCR) was stiflingly polluted. This resulted in many falling sick and others having to purchase face masks for personal use and install
G air purifiers in buildings.

5. The conclusion that the air in the NCR and particularly in Delhi was polluted is not only based on the above information but is also based on the statutory standards or the National Ambient Air Quality Standards laid down in India. The standards are in Schedule VII of the Environment

H ¹ Arjun Gopal v. Union of India, (2017) 1 SCC 412

(Protection) Rules, 1986. Broadly stated the presence of $PM_{2.5}$ should range between 40 and 60 $\mu g/m^3$ and the presence of PM_{10} should range between 60 and 100 $\mu g/m^3$. For the purposes of a lay person understanding this, it would be enough to say that air quality index or AQI is dependent on eight pollutants and the categorization based on the presence of these pollutants is as follows:

AQI Range	Category
0-50	Good
51-100	Satisfactory
101-200	Moderately polluted
201-300	Poor
301-400	Very poor
401-500	Severe

In Delhi, during November 2016 the AQI was way above 500 on several days and had even crossed 700 the day after Diwali. The standards laid down in Schedule VII of the Environment (Protection) Rules, 1986 are as follows:

SCHEDULE VII
National Ambient Air Quality Standards

S. No.	Pollutant	Time weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual* 24 hours**	50 80	20 80	- Improved West and Gacke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO_2), $\mu g/m^3$	Annual* 24 hours**	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than $10\mu m$) or PM_{10} $\mu g/m^3$	Annual* 24 hours**	60 100	60 100	- Gravimetric - TOEM - Betaattenuation

A	4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual* 24 hours**	40 60	40 60	- Gravimetric - TOEM - Beta attenuation
B	5.	Ozone (O ₃) µg/m ³	8 hours* * 1 hour**	100 180	100 180	- UV photometric - Chemiluminescence - Chemical Method
C	6.	Lead (Pb) µg/m ³	Annual* 24 hours**	0.50 1.0	0.50 1.0	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
D	7.	Carbon Monoxide (CO) mg/m ³	8 hours* * 1 hour**	02 04	02 04	- Non Dispersive, Infra Red (NDIR) spectroscopy
E	8.	Ammonia (NH ₃) µg/m ³	Annual* 24 hours**	100 400	100 400	- Chemiluminescence - Indophenol blue method
F	9.	Benzene (C ₆ H ₆) µg/m ³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
G	10.	Benzo(a) Pyrene (BaP) - particulate phase only, ng/m ³	Annual*	01	01	- Solvent extraction followed by HPLC /GC analysis
H	11.	Arsenic (As), µg/m ³	Annual*	06	06	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

12.	Nickel (Ni), $\mu\text{g}/\text{m}^3$	Annual*	20	20	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
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* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

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** 24 hourly or 08 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

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Notes. - Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigations.

6. In the backdrop of these staggeringly high $\text{PM}_{2.5}$ levels and other information provided by learned counsel appearing for the parties, including damage to health by breathing in such highly polluted air, this Court directed the Union of India on 11th November, 2016 to:

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- (i) Suspend all such licences as permit sale of fireworks, wholesale and retail within the territory of the National Capital Region (NCR).
- (ii) The suspension shall remain in force till further orders of this Court.
- (iii) No such licences shall be granted or renewed till further orders.

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7. The directions given by this Court have been implemented and are presently in operation. It was further directed that the Central Pollution Control Board (CPCB) will study and prepare a report on the harmful effects of the materials currently used in the manufacture of fireworks. The report was to be submitted to this Court within a period of three months. Notwithstanding the aforesaid order the CPCB has not furnished the report.

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Application for modification of the interim order

8. Feeling aggrieved by the continuance of the interim order passed on 11th November, 2016 the concerned manufacturer and supplier of fireworks moved I.A. No.52448 of 2017 for modification/vacation of

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A the said order. The applicant was supported by other manufacturers and suppliers.

B 9. It is stated in the application for modification or vacation of the interim order that there are 821 fireworks industries situated in and around Sivakasi and they produce and supply fireworks and sparklers all over the country for festivals such as Diwali, Dussehra, Christmas, Ramzan and other important ceremonies. It is further stated that these industries directly employ about 2 lakh people and in addition, about 3 lakhs are employed in ancillary and subsidiary industries connected with the production and supply of fireworks.

C 10. According to the applicant the National Green Tribunal (NGT) rendered a decision on 10th November, 2016 in Original Application No.21 of 2014 and other connected matters in which it is recorded that there are seven major contributors of air pollution in the NCR and these are:

- D 1. Construction activity and carriage of construction material.
2. Burning of Municipal Solid Waste and other waste.
3. Burning of agriculture residue.
4. Vehicular Pollution.
5. Dust on the roads.
- E 6. Industrial and power house emission including fly-ash.
7. Emissions from Hot-Mix Plants and Stone Crushers.

F In other words, the submission of the applicant was that fireworks are not a major contributor of air pollution. We may, however, add that during the course of submissions, it was accepted by learned counsel for all the parties that whether or not the bursting of fireworks is a major cause of air pollution in the NCR, it is certainly one of the causes of air pollution, particularly in Delhi.

G 11. The applicant also referred to and relied upon a study conducted by the Indian Institute of Technology, Kanpur (IIT-K) in January 2016. The study is titled "Comprehensive Study on Air Pollution and Green House Gases in Delhi". The study was submitted in the form of a report to the Department of Environment of the Government of NCT of Delhi and the Delhi Pollution Control Committee. The study conducted by IIT-K suggests that the sources of PM_{2.5} are several but the bursting of

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fireworks is not one of them. We have not been informed whether any use has been made (if at all) of the study. A

12. In addition to the aforesaid, the applicant also relied upon a view expressed by the CPCB before this Court to the effect that poor wind speed was one of the causes of smog over Delhi particularly in the winter months. It was also submitted that there are certain other geographical and meteorological conditions such as temperature, wind direction and boundary layer that contribute to the presence of smog in Delhi. B

13. It was also submitted that the burning of crops or stubbles in Punjab and Pakistan also caused air pollution in Delhi and indeed this was the case in October-November 2016. A reference was made to a brief write up along with an image, released by the Earth Observatory of the National Aeronautics and Space Agency (NASA) and dated 2nd November, 2016, stating that, "Punjab ranks among the nation's top wheat and rice producers. For a few weeks in October and November, Punjab also becomes a major producer of air pollution." A reference was also made to a report in the New York Times by Geeta Anand on 2nd November, 2016 that an estimated 32 million tons of leftover straw from rice harvests were burnt in Punjab and Haryana, in spite of an NGT direction against this, and this led to plumes of smoke blackening the skies in the capital. C D E

14. The applicant drew our attention to the poor air quality in Delhi on the days prior to Diwali 2016 and for more than a month thereafter. A comparison was drawn with the air quality recorded by the CPCB in Andhra Pradesh, Telangana, Karnataka and West Bengal to suggest that on some days prior to Diwali, the air quality was not particularly healthy in select cities in these States thereby suggesting that the air is generally polluted in different parts of the country and the bursting of fireworks may marginally add (if at all) to air pollution. In this context it was submitted that the bursting of fireworks takes place only for a couple of days around Diwali and other festive occasions and that cannot by itself result in a substantial deterioration in air quality all over the country including Delhi. The bursting of fireworks around Diwali would have only a temporary and transitory impact and not any long lasting effect. Therefore, the bursting of fireworks around Diwali does not explain high PM_{2.5} levels in Delhi more than even a month after Diwali. F G H

A 15. During the course of submissions it was pointed out that the
Delhi Pollution Control Committee had issued a direction on 8th November,
2016 under the provisions of the Air (Prevention and Control of Pollution)
Act, 1981 banning the bursting of fireworks at all times except on religious
occasions. It was submitted that this ban is still in force and therefore it
cannot be said that the terrible quality of air in Delhi in November 2016
B and thereafter is attributable only to bursting of fireworks - there are
several other factors. It was submitted that on an overall consideration
of the issues, the ban and sale of fireworks in Delhi and in the NCR
should be modified if not lifted.

C 16. Learned counsel for the petitioners gave us a Note on the
harmful and deleterious effects of some of the chemicals used in
fireworks. We have no doubt and indeed no learned counsel had any
doubt that the excessive use of chemicals in fireworks could have serious
and deleterious health effects, particularly among children. We are,
therefore, proceeding on this basis without reference to the Note since
D there is no dispute on this aspect. With this agreement in mind (which
has always been there), we had passed an order on 31st July, 2017 after
hearing learned counsel as well as Dr. A.B. Akolkar, Member Secretary
of the CPCB and Mr. K. Sundershan, Deputy Chief Controller of
Explosives, Sivakasi to the effect that fireworks manufactured by the
respondents shall not contain antimony, lithium, mercury, arsenic and
E lead in any form whatsoever. We had also directed that it would be the
responsibility of PESO to ensure compliance particularly in Sivakasi.
We had noted that there was some doubt about the health hazards that
could be caused by the use of strontium in fireworks and adjourned the
matter to hear submissions in that regard.

F **Steps taken to reduce air pollution**

17. Learned counsel for the parties drew our attention to certain
steps that have been taken to curb air pollution in Delhi around the time
of Diwali.

G 18. The Petroleum and Explosives Safety Organization (PESO)
had laid the foundation stone of the Fireworks Development Research
Centre (FDRC) on 28th November, 2004. This is a specialized Centre
which has been operating now for quite some time. The functions and
activities of the Centre are the following:

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1. Research & Development of eco friendly fireworks. A
2. Testing of raw materials used in the manufacturing of fireworks.
3. Mechanisation of hazardous process in fireworks industry.
4. Testing of general performance and sound level of fireworks.
5. Rendering guidance for development of new products and standardization of general products. B
6. Improvement of quality control and quality assurance.
7. Imparting training to supervisors and workers of fireworks factories. C
8. Investigation of accidents.

19. It was brought to our notice that the FDRC has done some good work though related only to a few fireworks that are colloquially referred to as (a) Atom Bomb, (b) Chinese crackers (no reference to China at all), (c) Maroons and (d) Garland crackers. This study and research relates to the sound caused by the bursting of these fireworks and the light and colour emitted by them. No work has been done or study conducted at all with reference to pollution in the air caused by the bursting of these or other fireworks. We were informed (somewhat faintly) that this is really the job of the CPCB but the FDRC is willing to extend full cooperation to the CPCB in arriving at some definite standards. D E

20. It was also pointed out that this Court had passed an order on 18th July, 2005 in *Noise Pollution (V), in Re.*² to the following effect:

(i) *Firecrackers*

“174. 1. On a comparison of the two systems i.e. the present system of evaluating firecrackers on the basis of noise levels, and the other where the firecrackers shall be evaluated on the basis of chemical composition, we feel that the latter method is more practical and workable in Indian circumstances. It shall be followed unless and until replaced by a better system. F G

2. The Department of Explosives (DOE) shall undertake necessary research activity for the purpose and come out with the chemical formulae for each type or category or class of

² (2005) 5 SCC 733

- A firecrackers. DOE shall specify the proportion/composition as well as the maximum permissible weight of every chemical used in manufacturing firecrackers.
3. The Department of Explosives may divide the firecrackers into two categories - (i) sound-emitting firecrackers, and (ii) colour/light-emitting firecrackers.
- B 4. There shall be a complete ban on bursting sound-emitting firecrackers between 10 p.m. and 6 a.m. It is not necessary to impose restrictions as to time on bursting of colour/light-emitting firecrackers.
- C 5. Every manufacturer shall on the box of each firecracker mention details of its chemical contents and that it satisfies the requirement as laid down by DOE. In case of a failure on the part of the manufacturer to mention the details or in cases where the contents of the box do not match the chemical formulae as stated on the box, the manufacturer may be held liable.
- D 6. Firecrackers for the purpose of export may be manufactured bearing higher noise levels subject to the following conditions: (i) the manufacturer should be permitted to do so only when he has an export order with him and not otherwise; (ii) the noise levels for these firecrackers should conform to the noise standards prescribed in the country to which they are intended to be exported as per the export order; (iii) these firecrackers should have a different colour packing, from those intended to be sold in India; (iv) they must carry a declaration printed thereon something like
- E “not for sale in India” or “only for export to country AB” and so
- F on.

But again these directions were confined to the sound (or noise), colour and light emitted by the bursting of fireworks and had no reference to air pollution.

- G 21. We were also informed that this Court had passed an order on 16th October, 2015 in the present petition to the following effect:
- “The Union Governments and all the State Governments will give wide publicity both in print and Electronic media to the ill effects of fireworks and advise people accordingly.

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We also direct the Teachers/ Lecturers/ Assistant Professors/ Professors of the Schools and Colleges to educate the students about the ill effects of the fireworks.” A

In other words, directions have been issued by this Court from time to time to prevent air pollution around the time of Diwali and to make people aware of the health hazards of bursting fireworks. B

22. An affidavit has been filed on behalf of the Government of NCT of Delhi on 26th August 2017 in which it is stated that school children are being informed about the hazards and ill-effects of indiscriminate bursting of fireworks by encouraging participation of schools in ‘anti-fire crackers’ campaigns. Through these campaigns, participation of all stakeholders and eco-clubs is expected and schools are advised to organize innovative awareness programmes on the issue. C

23. It is further stated that the Directorate of Education has advised all heads of schools to sensitize students and staff members about the ill-effects of bursting fireworks and to organize programmes for motivating students to “say no to crackers” and to utilize safe alternatives such as lights, flowers, paintings, etc. Additionally, heads of schools have been directed to personally address students to adopt safer measures to celebrate Diwali. It is stated that since 2010, circulars have been issued by the Directorate to spread the message of “Say No to Crackers”. D E

24. Finally, it is stated that on 24th August, 2017 the Directorate of Education has issued a circular to all heads of schools falling under the Directorate of Education to sensitize students and staff members about the ill-effects of bursting fireworks. F

25. An affidavit has also been filed on behalf of the Commissioner of Police in Delhi on 28th August 2017, in which it is stated that temporary licences for stocking fireworks can be granted by a Magistrate by virtue of Section 146 of the Delhi Police Act read with Section 4(c) of the Explosives Act. It is stated that the temporary licences are granted for 24 days, that is, two days before Dussehra and two days after Diwali. In any case, no temporary licence is granted for more than 30 days. In addition, it is stated that in the case of temporary sheds, a licence is granted for not more than 15 days in terms of the Explosives Rules. G

A 26. It is stated on behalf of the Commissioner of Police in Delhi that the maximum quantity of fireworks permissible is 100 kg in terms of Division 2, sub-division 2 of Schedule I of the Explosives Rules in respect of the fireworks mentioned therein (high hazard fireworks) and 500 kg under Division 2, sub-division 1 of Schedule I of the Explosives Rules in respect of the fireworks mentioned therein (low hazard fireworks).

B 27. The mandatory conditions laid down in the Explosives Rules are followed subject to the orders passed by this Court in *Sadar Bazar Fire Works (Pucca Shop) Association v. Pankaj Traders & Ors.*³ The order passed in this case on 1st November, 1993 reads as follows :

C “It appears that after this Court’s order of 22nd October, 1993, the authorities have issued a circular dated 26.10.93 imposing certain conditions in regard to which the petitioners have no objection, save and except Condition ii(a) which provides that the premises to be used for sale of crackers, etc. shall be at a minimum distance of 15 mtrs. from any such premises used for storage of similar explosives and hazardous materials. After some discussion at the Bar, Mr. Lahiri, the learned counsel for the respondents, states that appropriate instructions will be issued so that temporary licences are not denied on the ground that the cracker shops are adjacent to each other. We have also indicated to Mr. Lahiri that what was intended was that if there is any shop adjacent to the shops in respect of which licence is sought wherein any other highly inflammable and combustible material is being sold, that may be a factor which may weigh with the authority. In view of the statement made by Mr. Lahiri, we do not think it necessary to issue any direction. The proceedings will stand terminated with liberty to mention if there is any difficulty. The application for temporary licences should be processed without delay. The parties may be advised to complete the forms wherever there are deficiencies. With these observations, the Special Leave Petitions are disposed of.”

G 28. It is further submitted that permanent licences have been granted to 20 licensees as on date in Delhi and these have been suspended in view of the order passed by this Court on 11th November, 2016 (the corresponding figure for the NCR minus Delhi has not been given to us).

H ³ SLP (C) Nos. 17327-28/1993

29. With regard to the grant of temporary licences, it is stated that in 2016 a total of 1073 applications were received for temporary licences and only 968 temporary licences were issued for a period of 24 days each (the corresponding figure for the NCR minus Delhi has not been given to us). A

30. We were informed by the learned counsel for the Commissioner of Police that there is a prohibition on bursting fireworks between 10.00 pm and 06.00 am and a prohibition on the bursting of fireworks in silence zones, that is an area not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area declared as such by the competent District Deputy Commissioner of Police. B
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31. An affidavit has also been filed on behalf of the CPCB on 29th August, 2017 in which it is stated that during Diwali day, the level of metals/ constituents of fireworks indicated by PESO, that is aluminium, sulphur, potassium and barium are elevated. Some other constituents, such as titanium, iron, copper, zinc, strontium, antimony and chlorine were found to be in higher concentration during Diwali day as compared to other days. But the higher level of these constituents is observed only for one day. According to the CPCB, to regulate and minimize the adverse effects of fireworks, smoke and pollutants on human health, the following actions would be of assistance: D
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a. Constituents those mentioned in the specifications of PESO (year 2008) may only be permitted (Aluminium, Sulphur, Potassium and Barium).

b. Other constituents unless permitted under specified notification, if any, may not be permitted. F

c. Health advisories by authorized Medical Institutions for public can be disseminated for public safety.

32. With regard to our order of 31st July, 2017 on the use of strontium in fireworks, the CPCB is of the view that only strontium chromate is harmful/ dangerous to human health and may cause problems with bone growth, skin rashes, skin problems and possibly lung cancer. The safe limits of strontium in the ambient air have not been mentioned by the CPCB. G

33. On our asking, as a result of a submission made by learned counsel for the petitioners, the Union of India filed a Status Report on H

A 31st August 2017 with regard to the import of fireworks from China. It is stated that the import of any explosives containing sulphur or sulphurate in admixture with any chlorate is banned vide notification GSR No. 64(E) dated 27th January, 1992 on the manufacture, possession, use, sale etc. of any explosives. However, an exception has been made for import in respect of the following:

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- (a) in small quantities for scientific purposes;
 - (b) for the purpose of manufacturing heads of matches;
 - (c) for use in toy amorces (paper caps for toy pistols); or
 - (d) in percussion caps for use of Railway Fog Signals.
- C

34. It is further stated that Chinese origin fire crackers generally contain the above banned chemicals and are, therefore, prohibited from import. In this regard, it is stated that approximately 435 tons of Chinese origin fireworks have already been destroyed by the officials of the Joint Chief Controller of Explosives, West Circle, Mumbai, but the period of destruction and the manner of destruction has not been stated.

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The Explosives Act and Rules framed thereunder

35. The other perspective relates to licences issued for possession and sale of fireworks under the Explosives Act, 1884 and Rules framed thereunder and continuing the ban on the sale of fireworks or limiting the possession and sale of fireworks. For this purpose, it is necessary to appreciate the scheme of the Explosives Act and the Rules so that appropriate remedial steps can be taken in accordance with the provisions of the law.

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36. Section 4 of the Explosives Act, 1884 (for short 'the Act') contains various definitions. Section 4(d) defines the word 'explosive' and it includes, amongst others, fireworks. In this context, the classification of explosives is given in Schedule I to the Explosives Rules, 2008 (for short 'the Rules') and Class 7 thereof relates to fireworks which are categorized into divisions and classes. This reads as follows:

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Class 7 – Fireworks Class

“(1) Fireworks Class has four divisions, namely, Division 1, Division 2, Division 3, and Division 4.

(2) Division 1 comprises fireworks composition that is to say, any chemical compound or mechanically mixed preparation of

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[MADAN B. LOKUR, J.]

an explosive or inflammable nature, which is used for the purpose of making manufactured firework, and is not an explosive of classes 1,2,3,4,5 & 6, any star and any coloured fire composition: A

Provided that a substantially constructed hermetically closed metal case, containing not more than 500 grammes of coloured fire composition of such a nature, as not to be liable to spontaneous ignition shall be deemed to be "a manufactured firework" and not a "firework composition". B

(3) Division 2 fireworks comprises manufactured fireworks i.e., to say any explosive of class 1,2,3,4 or 6 and any fireworks composition when such explosive or composition is enclosed in any case or contrivance or other articles specially adapted, for the production of pyrotechnic effect for pyrotechnic signal or sound signals. C

(4) Division 2 fireworks comprises 3 sub-divisions, namely, sub-division 1, sub-division 2 and sub-division 3. D

(5) Sub-division 1 of Division 2 fireworks comprises low hazard fireworks which, in the opinion of Chief Controller are relatively innocuous in themselves and are not liable to explode violently or all at once, e.g., sparklers [Chinese crackers, serpents, etc.].

(6) Sub-division 2 of Division 2 of fireworks comprises high hazard fireworks which, in the opinion of Chief Controller, present a special hazard to a person, e.g., rockets, shells, maroons, wheels, barrages, fountains, illumination pieces, distress signals, pyrotechnic devices etc. E

(7) Sub-division 3 of Division 2 fireworks comprises such fireworks, which are assembled at site purely for the purpose of display. F

(8) Division 3 comprises any explosive contrivance required for the manufacture of manufactured fireworks, e.g., quick match fuse, micro cord fuse, etc. G

(9) Division 4 comprises manufactured fireworks for use of Armed Forces of the Union."

37. Section 5 of the Act confers the power to make Rules as to licensing of the manufacture, possession, use, sale, transport, import and

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A export of explosives. Quite naturally, the Rules framed under the Act also deal with fireworks.

38. For the present, we are concerned only with certain provisions of the Rules. Rule 2(19) defines “display fireworks” as a group of authorized manufactured fireworks assembled at site, solely for the purpose of display.

39. Rule 2(24) defines “fireworks” as low hazard explosive comprising of any composition or device manufactured with a view to produce coloured fire or flame, light effect, sound effect, smoke effect (coloured or natural), or combination of such effects and includes fog-signals, fuses, rockets, shells, percussion caps.

40. Rule 2(25) defines “fireworks composition” as any chemical compound or mechanically mixed preparation of an explosive or inflammable substance that is used for the purpose of making manufactured fireworks and is not included in any other class of explosives, and includes any star or colored fire composition.

41. Finally, Rule 2(32) defines “manufactured fireworks” as low hazard explosive contrivance containing explosive or combination of different classes, namely, Class 1 or Class 2 or Class 3 or Class 4 or Class 6 given in Part 1 of Schedule I of these rules or any explosives that come under Division 2 or Division 3 or Division 4 under Class 7 given under the said Part.

42. Rule 4 deals with the classifications of explosives and as far as fireworks are concerned, they are categorized into sound emitting fireworks, colour or light emitting fireworks, display fireworks and fireworks for export purposes. We are concerned only with the first three categories of fireworks and they are explained as follows:

“4. Classification of explosives.—(1) For the purposes of these rules, the explosives shall be classified in the manner specified in Schedule I. The dual system of classification shall be retained for five years from the date of commencement of these Rules, thereafter only UN classification shall be applicable.

(2) If any explosive falls within the limits of more than one class as defined in Schedule I, it shall be deemed to belong exclusively to the last number of such classes.

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(3) The fireworks are classified into the following categories depending upon the desired pyrotechnique effect :— A

(i) Sound emitting fireworks.—Fireworks with sound level not exceeding 125 dB (AI) or 145 dB (C) pk at 4 meters distance from the point of bursting. For individual fire-cracker constituting the series (joined fire-crackers), the above mentioned limit be reduced by $5 \log_{10}(N)$ dB, where N = number of crackers joined together; B

(ii) Colour or light emitting fireworks.—such fireworks which emit colour or light and having sound level not exceeding 90 dB (AI) at 4 m distance from the point of bursting; C

(iii) Display Fireworks.— Any product of fireworks assembled at the site for the purpose of display including shell of diameter exceeding 25 mm, multiple shots or cake products of any diameter exceeding 25 nos., of shots in a product and lance network or other products as approved by the Chief Controller.” D

43. Rule 9(5) provides that possession of fireworks, not exceeding one hundred kilogram for own use and not for sale does not require any licence to be issued, notwithstanding anything contained in Rule 7 of the Rules.

44. Rule 15 relates to marking on explosives and packages. As per sub-Rule (i), (ii) and (iii) thereof, packages of fireworks shall contain the following markings in a conspicuous indelible character, by means of a stamping, embossing or painting. The relevant portion of this Rule reads thus: E

“15. Marking on explosives and packages.— F

(1) Marking on packages. — (i) The outer package shall be marked in conspicuous indelible character, by means of a stamping, embossing or painting with —

(a) the word “EXPLOSIVES”; G

(b) the name of authorised explosive;

(c) the number if any of the Class and the Division including sub-division to which it belongs;

(d) the safety distance category of explosive; H

- A (e) the name of the manufacturer;
 (f) identification number of the package;
 (g) the net weight of explosives;
 (h) gross weight of the package;
- B (i) date of manufacture and batch number;
 (j) UN Classification and UN Identification number (for export packages);
 (k) in case of plastic explosives, the words “marking agent added as per International Civil Aviation Organisation Resolution A 27-8” referred in sub-clause (iv) of clause (c) under sub-rule (2) of rule 10; and
- C (l) a paper slip containing the above details shall be kept inside the package:
- D Provided that in the case of safety fuse or fireworks, clauses (a) and (l) may be omitted and the words “safety fuse” or “Fireworks” shall be marked.
- E (ii) In case of fireworks, the names of the items, for example - amorces, paper caps, serpents eggs, etc., as appropriate shall be marked.
- F (iii) Every manufacturer shall on the box of each fire cracker shall mention details of its chemical content, sound level and that it satisfies requirements as laid down by the Chief Controller. Fire-cracker meant for export shall have a different colour packing from those intended to be sold in India and a clear print indicating that they are not to be sold in India.”

Sub-Rule 4 of Rule 15 of the Rules is also of some importance and this reads as follows:

- G “(4) Marking on fireworks.— In case of fireworks, explosive composition, quantity of such composition, whether sound emitting crackers or colour or light emitting crackers, sound level, a caution or warning indicating the name of the item, manufacturer’s name, method of firing and precautions to be taken both in words and pictorial view shall be printed on each piece of fireworks and cardboard box and where adequate space is not available on the
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fireworks, such caution or warning shall be printed on a separate label and inserted in the smallest packet or carton.” A

45. Chapter VII of the Rules relates to special provisions for possession, sale and use of explosives. Rule 75 therein provides for a permit to be issued for temporary possession of manufactured fireworks in excess of the licensed quantity and this provides that a permit for a period not exceeding thirty days may be granted by the licensing authority to a licensee for fireworks shop to possess one-third in excess of the licensed quantity on receipt of the appropriate fees. B

46. Rule 84 of the Rules provides for temporary shops for possession and sale of fireworks during festivals and this reads: C

“84. Temporary shops for possession and sale of fireworks during festivals.—During festivals, the District Magistrate may issue temporary licences for possession and sale of fireworks in a temporary shop subject to the following conditions, namely :—

(1) The fireworks shall be kept in a shed made of non-flammable material, which is closed and secured so as to prevent unauthorised persons having access thereto. D

(2) The sheds for possession and sale of fireworks shall be at a distance of at least three metres from each other and fifty metres from any protected work. E

(3) The sheds shall not face each other.

(4) No oil burning lamps, gas lamps or naked lights shall be used in the shed or within the safety distance of the sheds. Electrical lights, if used, shall be fixed to the wall or ceiling and shall not be suspended by flexible wire. Switches for each shop shall be fixed rigidly to the wall and a master switch shall be provided for each row of sheds. F

(5) Display of fireworks shall not be allowed within fifty metres of any shed.

(6) In one cluster not more than fifty shops shall be permitted.” G

47. Chapter VIII of the Rules relates to the grant or refusal of approval, no objection certificate, licence, certificates, amendment, transfer and renewal of licences. Rule 99 therein provides that licences and certificates, for a specific purpose may be granted by the authorities, specified in Part 1 of Schedule IV of the Rules.

A 48. Rule 106 provides for the period of validity of the licence granted under the Rule while Rule 113 provides for documents to be furnished for approval and grant of a licence and the relevant Form required to be filled up by an applicant.

B 49. Schedule IV referred to in Rule 99 of the Rules, particularly Part 1 thereof is required to be read with Rule 113 of the Rules and from a perusal of items 5 and 6 thereof, the limits for possession and sale of fireworks, the relevant licensing application form and the licensing authority are indicated.

C 50. Learned counsel for the applicant informed us through a note that as of date, in the NCR, PESO has issued 435 permanent licences and in Delhi alone, PESO has issued 175 permanent licences, thereby making a total of 610 permanent licences. It is further stated that the stocks in hand of the fireworks in the NCR both under permanent and temporary licences is 50,00,000 kg in the NCR and 1,00,000 kg in Delhi.

D **What more needs to be done**

E 51. What is necessary now is to correlate air pollution with the sale and bursting of fireworks in Delhi and the NCR. There is no doubt that the air we breathe gets polluted with the bursting of fireworks. The extent of air pollution caused by bursting fireworks is not clear in the absence of empirical data – it could be severe or it could be marginal, but it is there.

F 52. Have the steps already taken by the concerned authorities reduced air pollution during Diwali? It seems to us that the steps so far taken by the Government of NCT of Delhi are limited to issuing directions, which is merely paperwork. Only general directions have been given in the past to schools to sensitize the students and the staff as to the ill-effects and health hazards of bursting fireworks. No specific plan of action has been laid down by the Government of NCT of Delhi to make children aware of the hazards of bursting fireworks and the existing awareness campaigns have been allowed to drift over the last one year.

G There is no information on the success or failure of these campaigns.

H 53. The response of the Government of NCT of Delhi is lethargic with the absence of any keenness to take proactive steps. This is disconcerting. It is high time that governmental authorities realize that the cost of ill health (particularly among children) is far greater in psycho-social terms than in financial and economic terms. The adage that

'prevention is better than cure' is fully applicable in the present circumstances. A

54. Similarly, the Delhi Police has issued directions that are difficult to enforce such as restricting the time during which fireworks can be burst. These are *ad hoc* measures that might be workable (if at all) only for the immediate future. We have not been informed of the impact of such directions or their implementation. B

55. We must note that there has been no response from the States within the NCR giving the impression that air pollution is not a problem for the State Governments despite the ill-effects and health hazards of bursting fireworks. C

56. There must be a concerted effort by the powers that be to ensure awareness and sensitization of the people in Delhi and NCR, particularly children, of the health hazards of indiscriminate use of fireworks. Unless urgent steps are taken, there could be an adverse impact on the health of children and this would be to nobody's benefit but to everybody's detriment. Anybody who lived in Delhi during Diwali in 2016 and soon thereafter would have experienced the choking effects of breathing in polluted air and the tremendous increase in the use and sale of face masks and air purifiers. In the absence of any concerted plan of action implemented by the governmental authorities, the residents responded in an *ad hoc* manner by purchasing face masks and air purifiers. There is no doubt that an effective and longer lasting solution is necessary. D E

57. What has really disturbed us is that the CPCB was directed on 11th November, 2016 to study and prepare a report within three months on the harmful effects of the materials used in the manufacture of fireworks. It is astonishing that the CPCB has not conducted the study and prepared a report as directed. Apart from the fact that the CPCB has not conducted any study, even otherwise, no standards have been laid down by the CPCB which could give any indication of the acceptable and permissible limit of constituent metals or chemicals used in fireworks and released in the air, beyond which their presence would be harmful or dangerous. There cannot be any doubt that the presence of certain metals or chemicals in the air beyond a particular limit would be inadvisable but that limit is not known to anybody including the CPCB. Therefore, any discussion on the subject of whether there is an excessive presence of a particular chemical in the air will not yield any result unless H

A some authority lays down an acceptable standard of what is excessive and what is not. Dr. Akolkar, Member Secretary of the CPCB had informed us on 31st July, 2017 that the CPCB would be in a position to lay down the standards by 15th September, 2017. We do hope the CPCB does so – in any case as a part of the continuing mandamus principle laid down by this Court, the matter is required to be followed up.

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58. What is also worrying, apart from the absence of standards or limits having been laid down by the CPCB, is that very little or no attention seems to have been paid by any of the governmental authorities to the possible health hazards faced by children due to exposure to chemicals in fireworks. The governmental authorities need to realize their responsibility regarding the care and protection of the health of the people in Delhi and NCR and the importance of launching a sustained campaign to reduce air pollution to manageable limits during Diwali and the period immediately thereafter. The health of children should be of foremost concern in this regard. It is, as submitted, only a matter of a few days of intense pollution but even that is capable of having long term health effects. There are also short-term adverse consequences of breathing in polluted air and even this cannot be overlooked by the governmental authorities, particularly in the case of children.

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59. On 31st July, 2017 we had prohibited the use of five chemicals and their compounds in the manufacture of fireworks. These constituents are antimony, lithium, mercury, arsenic and lead. We had left open the issue of use of strontium and its compounds in the manufacture of fireworks. During the course of submissions on the issue of whether the use of strontium should be permitted in fireworks and the application for modification or vacation of the interim order, our attention was drawn to an article in the *Swarajya* magazine, by one Srikanth Ramakrishnan who reported that the National Environmental Engineering Research Institute (NEERI) along with researchers from an organization based in Austria, namely, International Institute for Applied Systems Analysis (IIAS) had conducted a study whose results revealed that the majority of the pollution in Delhi comes from outside the NCT of Delhi and from other areas in the NCR in Uttar Pradesh and Haryana. Therefore, no matter what air quality standards are adopted in Delhi, pollution would flow in from the neighbouring States in any case. The report prepared by NEERI and the IIAS has not been made available to us.

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60. Be that as it may, the CPCB has now concluded that only strontium chromate is harmful or dangerous to human health. Therefore, we have no option but to prohibit the use of strontium chromate in the manufacture of fireworks. A

61. It was submitted by Mr. P.S. Patwalia, learned counsel appearing for one of the respondents that the best possible solution to the problem of air pollution in Delhi, allegedly due to the bursting of fireworks, would be to constitute a Committee to advise this Court. It was submitted that when the issue of noise pollution had surfaced, the CPCB had set up the National Committee on Noise Pollution and Control in 1997 which led to noise pollution standards being set. It was suggested that a similar exercise may be undertaken to deal with the issue of air pollution due to bursting of fireworks in Delhi. This was precisely the purpose of issuing a direction to the CPCB on 11th November, 2016 but that was not taken seriously. Therefore, in our opinion, the suggestion deserves acceptance and it is necessary to set up such a Committee with the assistance and guidance of the CPCB and the FDRC. The Committee can quite effectively conduct a study along with assistance and inputs from other bodies or organizations and make recommendations. It may be appropriate to appoint a Committee including officers at the appropriate level from the National Physical Laboratory, Delhi, the Defence Institute of Physiology and Allied Sciences, Timarpur, Delhi, the Indian Institute of Technology, Kanpur, scientists from the State Pollution Control Boards, the Fire Development and Research Centre, Sivakasi and Nagpur and the National Environment Engineering Research Institute (NEERI). B
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62. It was submitted by learned counsel for the petitioners that the poor air quality in November 2016 justified the passing of the interim order on 11th November, 2016 and there was no reason to vary that order. Virulent air pollution is a cause of concern and the only remedy to stop its ill effects is to continue the suspension of licences for the sale of fireworks in Delhi and in the NCR. It was submitted that if there is any doubt regarding the effect of bursting fireworks on air pollution, and in the absence of any standards to measure the same, the safer course would be to continue such suspension rather than risk the health of large sections of people in Delhi and the NCR, particularly children. F
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A 63. It was submitted by learned counsel for the petitioners that in *Consumer Education & Research Centre v. Union of India*⁴ it was held by this Court that the right to health, though of a worker, is a fundamental right. We see no real difference between the fundamental right to health of a worker and the human right to health of any other citizen of the country, particularly children who perhaps need more care and attention. It was held in paragraph 24 of the Report:

B “The right to health to a worker is an integral facet of meaningful right to life, to have not only a meaningful existence but also robust health and vigour without which worker would lead life of misery. Lack of health denudes him of his livelihood. Compelling economic necessity to work in an industry exposed to health hazards due to indigence to bread-winning for himself and his dependants, should not be at the cost of the health and vigour of the workman. Facilities and opportunities, as enjoined in Article 38, should be provided to protect the health of the workman. Provision for medical test and treatment invigorates the health of the worker for higher production or efficient service. Continued treatment, while in service or after retirement is a moral, legal and constitutional concomitant duty of the employer and the State. Therefore, it must be held that the right to health and medical care is a fundamental right under Article 21 read with Articles 39(e), 41 and 43 of the Constitution and make the life of the workman meaningful and purposeful with dignity of person. Right to life includes protection of the health and strength of the worker and is a minimum requirement to enable a person to live with human dignity.”

F 64. A similar view was expressed in *Occupational Health & Safety Assn. v. Union of India*⁵ when it was held in paragraph 10 of the Report:

G “Right to health i.e. right to live in a clean, hygienic and safe environment is a right flowing from Article 21. Clean surroundings lead to healthy body and healthy mind. But, unfortunately, for eking out a livelihood and for national interest, many employees work in dangerous, risky and unhygienic environment. Right to live with human dignity enshrined in Article 21 derives its life

⁴ (1995) 3 SCC 42

H ⁵ (2014) 3 SCC 547

breath from the directive principles of State policy, particularly clauses (e) and (f) of Articles 39, 41 and 42. Those articles include protection of health and strength of workers and just and humane conditions of work. Those are minimum requirements which must exist to enable a person to live with human dignity. Every State has an obligation and duty to provide at least the minimum condition ensuring human dignity.”

65. Under the circumstances, there can be no doubt that the residents of the NCT of Delhi and indeed the entire NCR are entitled to breathe unpolluted air. They are entitled to the protection of their health from the adverse consequences of breathing in air polluted by the bursting of fireworks.

66. The right to breathe clean air is a recognized right under our Constitution. Learned counsel for the petitioners drew our attention to paragraphs 16 and 17 of *Vellore Citizens' Welfare Forum v. Union of India*⁶ which read as follows:

“The constitutional and statutory provisions protect a person’s right to fresh air, clean water and pollution-free environment, but the source of the right is the inalienable common law right of clean environment. It would be useful to quote a paragraph from Blackstone’s commentaries on the Laws of England (*Commentaries on the Laws of England of Sir William Blackstone*) Vol. III, fourth edition published in 1876. Chapter XIII, “Of Nuisance” depicts the law on the subject in the following words:

“Also, if a person keeps his hogs, or other noisome animals, or allows filth to accumulate on his premises, so near the house of another, that the stench incommodes him and makes the air unwholesome, this is an injurious nuisance, as it tends to deprive him of the use and benefit of his house. A like injury is, if one’s neighbour sets up and exercises any offensive trade; as a tanner’s, a tallow-chandler’s, or the like; for though these are lawful and necessary trades, yet they should be exercised in remote places; for the rule is, ‘sic utere tuo, ut alienum non leadas’; this therefore is an actionable nuisance. And on a similar principle a constant ringing of bells in one’s immediate neighbourhood may be a nuisance.

⁶ (1996) 5 SCC 647

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A ... With regard to other corporeal hereditaments; it is a
 nuisance to stop or divert water that used to run to another's
 meadow or mill; to corrupt or poison a watercourse, by
 erecting a dye-house or a lime-pit, for the use of trade, in
 the upper part of the stream; to pollute a pond, from which
 another is entitled to water his cattle; to obstruct a drain; or
 B in short to do any act in common property, that in its
 consequences must necessarily tend to the prejudice of
 one's neighbour. So closely does the law of England enforce
 that excellent rule of gospel-morality, of 'doing to others, as
 we would they should do unto ourselves'."

C Our legal system having been founded on the British common
 law the right of a person to a pollution-free environment is a part
 of the basic jurisprudence of the land."

D 67. The right to health coupled with the right to breathe clean air
 leaves no manner of doubt that it is important that air pollution deserves
 to be eliminated and one of the possible methods of reducing it during
 Diwali is by continuing the suspension of licences for the sale of fireworks
 and therefore implicitly, prohibiting the bursting of fireworks.

E 68. In our considered opinion, continuing the suspension of licences
 might be too radical a step to take for the present – a graded and balanced
 approach is necessary that will reduce and gradually eliminate air pollution
 in Delhi and in the NCR caused by the bursting of fireworks. At the
 same time it is necessary to ensure that injustice is not caused to those
 who have already been granted a valid permanent licence to possess
 and sell fireworks in Delhi and the NCR. The graded and balanced
 F approach is not intended to dilute our primary concern which is and
 remains the health of everybody and the human right to breathe good
 quality air or at least not be compelled to breathe poor quality air.
 Generally speaking, this must take precedence over the commercial or
 other interest of the applicant and those granted a permanent licence to
 possess and sell fireworks.

G 69. But, from the material before us, it cannot be said with any
 great degree of certainty that the extremely poor quality of air in Delhi in
 November and December 2016 was the result only of bursting fireworks
 around Diwali. Certainly, there were other causes as well, but even so
 the contribution of the bursting of fireworks cannot be glossed over.
 H Unfortunately, neither is it possible to give an accurate or relative

assessment of the contribution of the other identified factors nor the contribution of bursting fireworks to the poor air quality in Delhi and in the NCR. Consequently, a complete ban on the sale of fireworks would be an extreme step that might not be fully warranted by the facts available to us. There is, therefore, some justification for modifying the interim order passed on 11th November, 2016 and lifting the suspension of the permanent licences.

70. At the same time, it cannot be forgotten that admittedly there is a huge quantity of fireworks in Delhi and in the NCR and the figure has been provided to us by the applicant. Similarly, there can be no doubt that the Delhi Police had issued a large number of temporary licences in 2016 and it would not be unreasonable to assume that around and during Diwali, there would have been some illegal temporary shops set up, whether known or not known to the police. We do not have the figures with regard to the NCR, but we assume that like in Delhi, a large number of temporary licences have been issued for the possession and sale of fireworks. Therefore, there is a need to regulate the availability and sale of fireworks in Delhi and the NCR.

Directions

71. As mentioned above, the health of the people in Delhi and in the NCR must take precedence over any commercial or other interest of the applicant or any of the permanent licensees and, therefore, a graded regulation is necessary which would eventually result in a prohibition. Taking all factors into consideration, we are of the view that the following orders and directions are required to be issued and we do so:

(1) The directions issued by this Court in *Sadar Bazar Fire Works (Pucca Shop) Association*⁷ shall stand partially modified to the extent that they are not in conformity with the Explosives Rules which shall be implemented in full by the concerned authorities. Safety from fire hazards is one of our concerns in this regard.

(2) Specifically, Rule 15 relating to marking on explosives and packages and Rule 84 relating to temporary shops for possession and sale of fireworks during festivals of the Explosives Rules shall be strictly enforced. This should not be construed to mean that the other Rules need not be enforced – all Rules should be

⁷ SLP (C) No. 17327-28/1993 decided on 1st November, 1993

- A enforced. But if the fireworks do not conform to the requirements of Rules 15 and 84, they cannot be sold in the NCR, including Delhi and this prohibition is absolute.
- (3) The directions issued and restrictions imposed in the order passed by this Court on 18th July, 2005 in *Noise Pollution (V)* shall continue to be in force.
- B (4) The concerned police authorities and the District Magistrates will ensure that fireworks are not burst in silence zones that is, an area at least 100 meters away from hospitals, nursing homes, primary and district health-care centres, educational institutions, courts, religious places or any other area that may be declared as a silence zone by the concerned authorities.
- C (5) The Delhi Police is directed to reduce the grant of temporary licences by about 50% of the number of licences granted in 2016. The number of temporary licences should be capped at 500. Similarly, the States in the NCR are restrained from granting more than 50% of the number of temporary licences granted in 2016. The area of distribution of the temporary licences is entirely for the authorities to decide.
- D (6) The Union of India will ensure strict compliance with the Notification GSR No. 64(E) dated 27th January, 1992 regarding the ban on import of fireworks. The Union of India is at liberty to update and revise this notification in view of the passage of time and further knowledge gained over the last 25 years and issue a fresh notification, if necessary.
- E (7) The Department of Education of the Government of NCT of Delhi and the corresponding Department in other States in the NCR shall immediately formulate a plan of action, in not more than 15 days, to reach out to children in all the schools through the school staff, volunteers and NGOs to sensitize and educate school children on the health hazards and ill-effects of breathing polluted air, including air that is polluted due to fireworks. School children should be encouraged to reduce, if not eliminate, the bursting of fireworks as a part of any festivities.
- F (8) The Government of NCT of Delhi and other States in the NCR may consider interacting with established medical institutions for issuing advisories cautioning people about the health hazards of bursting fireworks.
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- H

(9) The interim direction issued by this Court on 31st July, 2017 prohibiting the use of compounds of antimony, lithium, mercury, arsenic and lead in the manufacture of fireworks is made absolute. In addition, the use of strontium chromate in the manufacture of fireworks is prohibited. A

(10) Fireworks containing aluminium, sulphur, potassium and barium may be sold in Delhi and in the NCR, provided the composition already approved by PESO is maintained. It is the responsibility of PESO to ensure compliance of the standards it has formulated. B

(11) Since there are enough fireworks available for sale in Delhi and the NCR, the transport of fireworks into Delhi and the NCR from outside the region is prohibited and the concerned law enforcement authorities will ensure that there is no further entry of fireworks into Delhi and the NCR till further orders. In our opinion, even 50,00,000 kg of fireworks is far more than enough for Dussehra and Diwali in 2017. The permanent licensees are at liberty to exhaust their existing stock of fireworks in Delhi and the NCR and, if that is not possible, take measures to transport the stocks outside Delhi and the NCR. C
D

(12) The suspension of permanent licences as directed by the order dated 11th November, 2016 is lifted for the time being. This might require a review after Diwali depending on the ambient air quality post Diwali. However, it is made explicit that the sale of fireworks by the permanent licensees must conform to the directions given above and must be fully in compliance with the Explosives Rules. We were informed that the permanent licences were issued by PESO and therefore the responsibility is on PESO to ensure compliance. E
F

(13) While lifting the suspension on the permanent licences already granted, we put these licensees on notice for Dussehra and Diwali in 2018 that they will be permitted to possess and sell only 50% of the quantity permitted in 2017 and that this will substantially reduce over the next couple of years. The permanent licensees are at liberty to file objections to this proposed direction within 30 days from today and thereafter the objections if any will be heard and decided. If no objections are filed, this direction will become absolute without any further reference to any licensee. G
H

A . (14) Since there is a lack of clarity on the safety limits of various
 B metals and constituents used in fireworks, a research study must
 C be jointly carried out by the CPCB and the FDRC laying down
 appropriate standards for ambient air quality in relation to the
 bursting of fireworks and the release of their constituents in the
 air. While Schedule VII of the Environment (Protection) Rules,
 1986 does deal with several metals, but as we have seen there
 are several other metals or constituents of fireworks that have
 not been studied by the CPCB and no standards have been laid
 down with regard to the concentration of these metals or
 constituents in the ambient air. The CPCB has assured us that it
 will complete the exercise by 15th September, 2017 but keeping
 in mind its track record subsequent to the order dated 11th
 November, 2016 this does not seem possible. Therefore, we
 grant time to the CPCB to come out with definite standards on
 or before 30th September, 2017.

D (15) In any event, a research study also needs to be conducted
 on the impact of bursting fireworks during Dussehra and Diwali
 on the health of the people. We, therefore, appoint a Committee
 to be chaired by the Chairperson of the CPCB and consisting of
 officers at the appropriate level from the National Physical
 Laboratory, Delhi, the Defence Institute of Physiology and Allied
 E Sciences, Timarpur, Delhi, the Indian Institute of Technology-
 Kanpur, scientists from the State Pollution Control Boards, the
 Fire Development and Research Centre, Sivakasi and Nagpur
 and the National Environment Engineering Research Institute
 (NEERI) nominated by the Chairperson of the CPCB to submit
 F a report in this regard preferably on or before 31st December,
 2017.

(16) Keeping in mind the adverse effects of air pollution, the
 human right to breathe clean air and the human right to health,
 the Central Government and other authorities should consider
 encouraging display fireworks through community participation
 G rather than individual bursting of fireworks.

72. With the above directions, I.A. No. 52448 of 2017 is disposed
 of.